EXHIBIT 8

[Graphic illustration attachment is too much data to scan. It will be on file at the Clerk's office]

UNITED STATES DISTRICT COURT
DISTRICT OF MASSACHUSETTS

CIVIL ACTION NO. 04-11924-RGS

IAN J. BROWN, JAMES BROWN, and BARBARA BROWN,
Plaintiffs,

v.

UNITED STATES OF AMERICA, VERIZON NEW ENGLAND, INC., and BOSTON EDISON COMPANY d/b/a NSTAR ELECTRIC,
Defendants.

AFFIDAVIT OF MARIUSZ ZIEJEWSKI

I, Dr. Mariusz Ziejewski, do hereby on oath depose and say as follows:

1. I am a biomechanical engineer, and have been retained as an expert witness by the plaintiffs in regard to the above-captioned matter.

2. My curriculum vitae is attached to this affidavit and incorporated by reference in this affidavit.

3. On November 5, 2006 I wrote a report containing my findings and opinions, and the basis for them, in regard to the mechanism of injury of Mr. Ian Brown during his motorcycle accident of January 4, 2002. I have attached a copy of that report, and incorporate it by reference to this affidavit.

4. It is my opinion that Mr. Brown's injuries, which principally consist of fractures of the T5-T7 vertebra, T-5 crush injury, T5-6 laminae fracture, spinal cord damage and resulting paraplegia, as well as his bilateral clavicular fractures, were more probably than not caused by Mr. Brown's body striking pole 16/37.

5. I hold this opinion to a reasonable degree of engineering certainty.

Signed under the penalties of perjury, this 15th day of April, 2007.

Mariusz Ziejewski

STATE OF NORTH DAKOTA
COUNTY OF CASS

Subscribed and Sworn to me this
15th day of April 2007

Diane Gauff Schmitt

Notary Public
State of North Dakota
My Commission Expires Mar. 30, 2010

Mariusz Ziejewski, Ph.D., Inż.
November 19, 2006

BIOMECHANICAL ANALYSIS OF IAN BROWN

1. OBJECTIVE

To assess the biomechanical aspects of the collision involving Ian Brown on January 4, 2002.

2. MATERIALS STUDIED

1. Police Report
2. Operative Reports and Discharge Summary from Beth Israel Hospital
3. X-rays from Beth Israel Hospital
4. Measurements of Murray Burnstine
5. Boston MedFlight Records
6. Emergency Department Record – Beth Israel Deaconess Medical Center
7. Dr. Paul Glazer Operative Reports
8. Radiology Reports – Beth Israel Deaconess Medical Center
9. Discharge Summary with Addendum – Beth Israel Deaconess Medical Center
10. Kessler Institute for Rehabilitation Report 5/18/06
11. Depositions and Exhibits of Ian Brown
12. Subject helmet, clothing and pieces of subject telephone pole.
13. Deposition and Exhibits of Tracy Cook
14. Photographs – produced in discovery

3. TASKS PERFORMED

For this analysis, I have done the following:

1. Studied the provided materials.
2. Determined the vehicle parameters for the 2001 Kawasaki.
3. Performed vehicle dynamics analysis.
4. Determined the stiffness characteristics and coefficient of friction for an exemplar telephone pole. (The following equipment was used: Dillon Force Gauge BFG 2500N, Serial Number 05-0257-04, Certificate Number 51638S and the Hybrid III head skull cap (#78051-220) with skin skull cap (Item #78051-229)
5. Prepared computer files for the 2001 Kawasaki Articulated Total Body (ATB) Armstrong Laboratory/Wright-Patterson Air Force Base (AL/WPAFB) computer program.
6. Determined the geometric and mass properties of Ian Brown's body segment and joint locations and range of motion characteristics using the Generator of Body Data (GEBOD) AL/WPAFB computer program.
7. Performed dynamics analysis on Ian Brown's for the collision using ATB (AL/WPAFB) computer program.
8. Prepared graphical illustration of body contact with the telephone pole.

4. GENERAL DESCRIPTION OF THE INCIDENT ON JANUARY 4, 2002

The Commonwealth of Massachusetts Motor Vehicle Crash Police Report form of January 4, 2002 indicates that it appeared that the rider, Ian Brown, skidded on the dirt shoulder on the right hand side. The distance from the start of the skid to where Ian Brown was found on the street was 74 feet. Pole 37 was approximately 9 feet to the right of Mr. Brown. The Kawasaki was 89 feet east of Mr. Brown heading down the hill. The officer determined from examining the helmet it was possible that Mr. Brown hit Pole 37 then rolled onto the street.

The records from Boston MedFlight indicate that Ian Brown had lost consciousness at the scene initially but was alert and oriented x3 when they arrived complaining of bilateral shoulder pain and back pain with no sensation from the nipple area down. They assessed his injuries as closed head injury and spinal cord injury. He was transported to Beth Israel Hospital.

CT scan of the thoracic spine revealed T5-7 vertebral body fracture with T5 crush injury and bony fragments in the spinal canal. He also suffered T5-6 laminae fracture, multiple rib fractures and bilateral clavicular fractures. The operative reports indicate that Ian Brown had a burst fracture T5-6 as well as T5-6 laminar fracture. His spinal cord was fused from T4-7 with segmental instrumentation. Based on the review of the medical records it can be concluded that the compressive forces (forces along the z axis) were the main cause of the fracture at T5-6 level.

5. MOTORCYCLE/RIDER DYNAMICS ANALYSIS

A site inspection and speed analysis was performed by Murray Burnstine. The results from his analysis indicate the helmet to pole impact speed was in the range of 20-25 mph.

Based on the review of the provided documents and my analysis regarding the general trajectory of the motorcycle and Ian Brown's body it is my opinion that:

- Mr. Brown's possible trajectory immediately prior to the impact was studied using geometrical relations between the telephone pole, guardrail and a male of 69 in and 185 lb. Based on the above Mr. Brown's trajectory, immediately prior to the impact, against the telephone pole is consistent with his body being in contact with the guardrail. The specific geometrical parameters of Mr. Brown's body came from GEBOD computer program, for a more detailed description of this program see Section 6 of my report. The geometrical relations for the telephone pole and guardrail were based on Mr. Burnstine's inspection. *See attached graphical illustration.*
- The most likely obstacle that was capable of generating forces of the magnitude and direction (compressive) to cause Mr. Brown's spinal injury was the telephone pole.
- Past the location of the telephone pole there is no obstacle capable of generating compressive contact forces in the upper torso of Mr. Brown.

- If there would not have been a telephone pole at the point of contact Mr. Brown's body would slide further along the roadway. Specifically, for Mr. Brown's velocity at the time of the contact with the telephone pole of 25 mph he would have slid a distance of approximately 38 feet. For the velocity of 5 mph he would have slid less than 2 feet.

6. BIOMECHANICAL ANALYSIS

The biomechanical evaluation of the collision on January 4, 2002 was performed using two different, independent analyses. The first analysis was based on general knowledge of impact biomechanics and the second analysis was performed utilizing a computer based case specific analysis.

One of the questions that had to be addressed at the beginning of the analysis was whether or not the fracture at T5-6 level, that Mr. Brown sustained, was as a result of head contact or upper torso contact. The Society of Automotive (SAE) J885 "Human Tolerance to Impact Conditions as Related to Motor Vehicle Design", Jul 86 provides information on compressive head loads and resulting damage descriptions for superior – inferior head impacts to cadavers with various head/neck torso angles. In this study the lowest thoracic fracture was at the T3 level. In the publication by Myklebust, J, et al, "Experimental Spinal Trauma Studies in the Human and Monkey Cadaver", SAE Paper #831614 it is reported that loading to the superior aspect of the upper thoracic can result in fractures to T5-6. Based upon this information it can be concluded that upper thoracic contact with the telephone pole was the cause of Ian Brown's T5-6 fracture.

Additionally, in the SAE Paper #831614 it was concluded that the fracture force level based on "fresh male human cadavers" in upper thoracic region (T1-6) is between 350 – 780 lb, with a mean value of 593 lb.

The first level of assessment of the contact forces between Mr. Brown's upper body and the telephone pole was determined based upon general principles of mechanics including Newton's 2nd Law ($F = m \cdot a$). In the analysis Mr. Burnstine's minimum speed of 20 mph and the weight of Mr. Brown at the time of the incident on January 4, 2002 was utilized. The results from the analysis indicate that the contact force to Ian Brown's head and upper torso would have been in excess of 1,500 lb.

Based on the comparison between case specific assessments of the force (1,500 lb) to the tolerance value in the thoracic region (350 – 780 lb) it must be concluded that 20 mph contact is more than sufficient to cause the injury sustained by Ian Brown on January 4, 2002.

To test and corroborate the above conclusion and further illustrate the severity of the insult, detailed specific calculations for the applied forces to the body of Ian Brown was carried out. The methodology utilized included computer based analysis as described below.

The GEBOD (AL/WPAFB) computer program was used to generate the body description for the ATB (AL/WPAFB) computer model input data set. The output data set includes the body segments' geometric and mass properties and the joints' locations and range of motion characteristics. The input data used for Ian Brown was male, height of 69.0 in and 185 lb.

The ATB (AL/WPAFB) computer program was used for the analysis. This program has been developed by researchers from the National Highway Traffic Safety Administration (NHTSA) and Armstrong Aerospace Medical Research Laboratory at Wright-Patterson Air Force Base. The ATB model was developed for the predication of human dynamics during hazardous events. The ATB model is a three-dimensional, rigid body dynamics program based on the Crash Victim Simulator developed by NHTSA during the early 1970's.

The ATB model has broad applications in the automobile, aerospace, and other transportation systems communities. It has the capability to predict the motion of the human bodies and manikins and their interaction with structures. The ATB model is also widely used in the civilian sector for the improvement of consumer safety, especially in the automotive industry. It is used in the Air Force to determine the safety and effectiveness of proposed test conditions. It is also used to provide data that cannot be measured during a test, such as forces within the body, and to supplement test data with parameter variation simulations.

The results from the case specific computer analysis indicates that for a velocity substantially lower than 20 mph the forces in the thoracic region would be sufficient to cause thoracic fracture, specifically, for 10 mph impact speed the compressive load was approximately 800 lb (the exact value was 823 lb). With a velocity as low as 5 mph the compressive load was approximately 400 lb (the exact value was 404 lb).

Based on the case specific analysis it must be concluded that sliding velocity as little as 5 mph into the telephone would have been sufficient to cause the injury sustained by Ian Brown on January 4, 2002.

7. CONCLUSIONS

I hold the following opinions to a reasonable degree of biomechanical engineering certainity:

7.1 Based on the review of Ian Brown medical records it can be concluded that the compressive forces (forces along the z axis) were the main cause of the fracture at T5-6 level.

7.2 Based on the results from the analysis of the general trajectory of the motorcycle and Ian Brown's body the most likely obstacle that was capable of generating the compressive forces on Mr. Brown's spine was the telephone pole.

7.3 Mr. Brown's trajectory prior to the impact against the telephone pole is consistent with his body being in contact with the guardrail;

7.4 The upper thoracic impact with the telephone pole with the resultant compressive force component was the cause of Ian Brown's T5-6 fracture on January 4, 2002.

7.5 The sliding velocity of the body into the telephone pole as low as 5 mph is sufficient to cause the compressive injury at T5-6 level as sustained by Ian Brown on January 4, 2002.

7.6 In the absence of the telephone pole at the location of the incident on January 4, 2002 Mr. Brown would not have sustained a T5-6 fracture.

I reserve the right to amend this report, to modify, change or alter my opinions predicated upon further discovery and receipt of any additional materials.

11-19-06
Date

Mariusz Ziejewski, Ph.D., Inż.
Associate Professor
Director of Impact Biomechanics Laboratory, College of Engineering
Director of Automotive Systems Laboratory, College of Engineering
North Dakota State University
And
Adjunct Associate Professor
Department of Neuroscience, School of Medicine
University of North Dakota

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Tenured Associate Professor, Department of Mechanical Engineering
- **Director of Impact Biomechanics Laboratory, College of Engineering**
- **Director of Automotive Systems Laboratory, Department of Mechanical Engineering**

North Dakota State University, Fargo, North Dakota 58105

Adjunct Associate Professor, Department of Neuroscience, School of Medicine
University of North Dakota, Grand Forks, North Dakota 58201

BIOGRAPHICAL SUMMARY

- *Elected to serve on the International Brain Injury Association's (IBIA) Board of Governors 2003-present*
- *Board member of the North American Brain Injury Society (NABIS) 2004-present*
- *Director for Biomechanics Section of the North American Brain Injury Society (NABIS).*
- *Chair, "Brain Injury: New Science, Best Practice, and Future Innovations," North American Brain Injury Society conference Poster Presentations, Amelia Island, FL. September 22-24, 2005.*
- *Development of soccer headgear national standards for American Society for Testing and Materials (ASTM), F08.53 Task Group on Soccer Headgear Subcommittee.*
- *Faculty member lecturing on biomechanical aspects of pathology in the nervous system secondary to trauma as a part of Neuroanatomy and Neurophysiology Course (NEUPSY 805) at the Fielding Institute with APA accredited Ph.D. Program in Clinical Psychology for the semester of 9/97-1/98.*
- *Former Member of the National Highway Traffic Safety Administration (NHTSA) Collaboration Group on Human Brain Modeling. 1994-1997.*
- *Member of the United States Engineering Education Delegation to the Republic of South Africa with assigned area of emphasis in bioengineering education. 1996.*
- *Selected to conduct research for the Armstrong Aerospace Medical Research Laboratory, Human System Division, Wright-Patterson Air Force Base, Dayton, Ohio during their 1996 and 1997 Summer Research Program. Projects included laboratory studies of human body responses to impact, head/neck biodynamic modeling, development of Biodynamics Injury Criteria for the human spine.*
- *President (2000 – 2002) and Chairman of the Activities Committee (1996 – 2000) involved in human body dynamic validation research studies for the Articulated Total Body (ATB) User's Group organized by the Armstrong Aerospace Medical Research Laboratory, Human System Division, Wright-Patterson Air Force Base, Dayton, Ohio.*
- *Collaborator to the Society of Automotive Engineers (SAE) Human Mechanical Response and Injury Criteria Task Group.*
- *Taught a variety of subjects over 25 years in the mechanical engineering field including biomechanics, vehicle dynamics, kinematics (human body dynamics) and computer modeling and simulation*
- *Authored two (2) book chapters and over forty (40) technical refereed articles.*
- *Invited Key Presentations:*
  - *"Biomechanical Perspective on Low Energy Impacts Causing Serious Long Term Consequences" and "State-of-the-Art Biomechanical Issues In Relation to Mild Traumatic Brain Injury". 5th World Congress on Brain Injury, International Brain Injury Association, Stockholm, Sweden, May 2003.*
  - *"Biomechanical Issues Related to Reduction of Trauma to the Brain from Unanticipated Low Impacts in Soccer". Chairman's Roundtable Discussion on Head Injury and Youth Sports, United States Consumer Products Safety Commission, Washington, D.C., May, 2000.*
  - *"Concussion Modeling", Sports Related Concussions Workshop, ASTM Subcommittee F08.51 on Medical Aspects and Biomechanics, Orlando, FL, November 2000.*
- *Compliance Testing FMVSS 223 Rear Impact Guards & 224 Rear Impact Protection, B.L. Industries 2004-2005.*
- *Editor for the International Journal of Mechanics and Solids (IJMS)*
- *Emergency Room (ER) Biomechanical Brain Injury Evaluation Research, FM Ambulance Service, MeritCare Trauma Center, Sponsored in part by MeritCare Foundation, Fargo, ND, 2001-2005.*
- *Certified in Crash Data Analysis, Sponsored by GM, Vetronix and Texas Eng. Ext., Santa Barbara, CA, 2001.*
- *Certified completion of Injury Scaling: Uses and Techniques Course (AIS Scale), April 2005. Sponsored by the AAAM.*

EDUCATION

ENGINEERING

Aug. 1985 · *Ph.D. in Engineering, North Dakota State University, Fargo, ND*
Major area: Mechanical Engineering

June 1978 · *Postgraduate education, Superior Automotive Officer School, Poland*

July 1977 · *Masters of Science in Agricultural Engineering (Equivalent of Bioengineering)*
Academy of Technology and Agriculture, Poland

June 1975 · *Bachelor of Science in Agriculture (Equivalent of Life Sciences)*
Academy of Technology and Agriculture, Poland

June 1975 · *Bachelor of Science in Mechanical Engineering*
Academy of Technology and Agriculture, Poland

ANATOMY AND PHYSIOLOGY

May 1995 · *Medical Neurosciences, School of Medicine,*
University of North Dakota, Grand Forks, North Dakota

May 1993 · *Human Anatomy and Physiology,*
North Dakota State University, Fargo, North Dakota

Dec. 1974 · *Human Physiology*
Academy of Technology and Agriculture, Poland

Dec. 1974 · *Biochemistry*
Academy of Technology and Agriculture, Poland.

June 1973 · *Human Anatomy,*
Academy of Technology and Agriculture, Poland.

CONTINUING EDUCATION

BIOMECHANICS

2006 Biomedical Engineering Society, 2006 Annual Fall Meeting, Chicago, IL
Brain Injury Association of Illinois, Annual Conference, Chicago, IL
North American Brain Injury Society, Brain Injury Conference of the Americas, Miami, FL.
8th International Neurotrauma Symposium, Traumatic Brain Injury, Spinal Cord Injury – The Silent Epidemic of the 21st Century, Rotterdam, The Netherlands.

2005 American Society of Testing and Materials (ASTM) Conference, Subcommittee F08.53 Task Group on Soccer Headgear, Dallas, TX.
American Society of Testing and Materials (ASTM) Conference, Subcommittee F08.53 Task Group on Soccer Headgear, Reno, NV.
Spring 2005 Brain Injury Conference: "Biomechanics and Physiological Impact of Traumatic Brain Injury" and American Academy for the Certification of Brain Injury Specialists (AACBIS). Memphis, TN.
Certified Completion of *Injury Scaling: Uses and Techniques* Course (AIS Scale). Sponsored by the Association for the Advancement of Automotive Medicine (AAAM). Approved by the American Health Information Management Association and satisfies the requirements of the Clinical Data Management core educational content area. Meets the Board of Certification for Emergency Nursing's (BCEN) Category of Clinical and has the approval of the Emergency Nurse's Association (ENA).

2004 ATB Model Users' Group Conference, Salt Lake City, UT
American Society of Testing and Materials (ASTM) Conference, Subcommittee F08.53 Task Group on Soccer Headgear, Salt Lake City, UT
Fifth Annual – Managing Challenging Situations in Brain Injury Care Conference, Bethesda Rehabilitation Hospital, Healtheast, Minneapolis, MN
Brain Injury Association of Indiana, "Contemporary Issues In Brain Injury Litigation", Indianapolis, IN

2003 Fifth Annual Brain Injury Association of America, Napa Valley, CA
16th Annual Medical & Legal Issues in Brain Injury; North American Brain Injury Society, Brain Injury Association of America, and International Brain Injury Association; Amelia Island, Florida
The Biomechanics of Brain Injury, Mt. Sinai Medical Center, Brain Injury Association of NY, New York, NY
5th World Congress of Brain Injury, International Brain Injury Association, Stockholm, Sweden.

2003 American Society of Testing and Materials (ASTM) Conference, Subcommittee F08.53 Task Group on Soccer Headgear, Kansas City, KS.
2002 6th Congress of the European Federation of Neurological Societies, International Brain Injury Association Vienna, Austria.
Fourth Annual Brain Injury Association of America, Napa Valley, CA.
ATB Model Users' Group Conference sponsored by the US Air Force Research Laboratory, Patuxent Naval Air Station, Patuxent River, MD.
2001 The Brain Injury Association's, 20th Annual Symposium, Atlanta, GA
2000 The Biomechanics of Brain Injury, Mt. Sinai Medical Center, Brain Injury Association of NY, New York, NY
Sports Related Concussions Workshop, ASTM Subcommittee F08.51 on Medical Aspects and Biomechanics, Orlando, FL
Biomechanics Research: Experimental and Computational, Proceedings of the Twenty-Seventh International Workshop, National Highway Traffic Safety Administration, Atlanta, GA 44th Stapp Car Crash Conference, Atlanta, GA*
2000 ATB Model Users' Group Conference, Wichita State University, Wichita, KS*
American Society for Testing and Materials Conference, Montreal, Quebec, Canada
1999 Brain Injury Conference, Bancroft NeuroHealth, Philadelphia, PA.
1998 NATO/RTO Specialist Meeting, Dayton, OH.
5th International LS-DYNA Users Conference, Detroit, MI.*
ATB Model Users' Group Conference sponsored by US Air Force Armstrong Laboratory, Dayton, OH.
1997 Aerospace Medical Association Annual Scientific Meeting in Chicago, IL (May)
ATB Model Users' Group Conference, US Air Force Armstrong Laboratory, Charlottesville, VA (Apr.)*
1996 Society of Automotive Engineers, 40th Stapp Car Crash Conference, Albuquerque, N.M. (Nov.)*
NATO/AGARD Specialists' Meeting on Impact Head Injury (Nov.)*
ATB Model Users' Group Conference, US Air Force Armstrong Laboratory, Phoenix, AZ (Feb.)*
1995 Twenty-Third International Workshop on Human Subjects for Biomechanical Research, US Department of Transportation, National Highway Traffic Safety Administration, San Diego, CA (Nov.)
Society of Automotive Engineers, 39th Stapp Car Crash Conference, San Diego, CA (Nov.)
Accidental Injury: Biomechanics & Prevention, sponsored by University of California, San Diego School of Medicine, San Diego, CA (Nov.)
ATB Model Seminar, Wright-Patterson Air Force Base, Dayton, OH (June)*
LS-DYNA3D Seminar LSTC, Livermore, California (March)*
1994 "*The Biomechanics of Impact and its Relationship to Crash Performance Standards*," sponsored by Association for the Advancement of Automotive Medicine (AAAM) in cooperation with International Research Council on the Biomechanics of Impact (IRCOBI), Philadelphia, PA (Oct.)
International Symposium on Head Injury Research, "*Head Injury '94*," sponsored by the U.S. Department of Transportation's National Highway Traffic Safety Administration, Oct. 12-14, 1994, Washington, D.C.
1993 Society of Automotive Engineers, International Congress & Exposition, Detroit, MI (Feb.) *
1991 Society of Automotive Engineers, International Congress & Exposition, Detroit, MI (Feb.) *
1988 Society of Automotive Engineers, International Congress & Exposition, Detroit, MI (Feb.) Seminar on Injuries, Anatomy, Biomechanics and Federal Regulation *
1986 Society of Automotive Engineers, International Congress & Exposition, Detroit, MI (Feb.) *
1984 Society of Automotive Engineers, International Congress & Exposition, Detroit, MI (Feb.) *
1982 Society of Automotive Engineers, International Congress & Exposition, Detroit, MI (Feb.) *
* Also listed under Vehicle Structure-Vehicle Dynamics

VEHICLE STRUCTURE - VEHICLE DYNAMICS

2006 Society of Automotive Engineers Seminar, Occupant and Vehicle Responses in Rollovers, Troy, Michigan.
2001 Crash Data Retrieval (CDR) Training and Certification, Sponsored by General Motors, Vetronix and Texas Engineering Extension Service (TEEX), (Airbag sensing and diagnostic module, vehicle speed, change in velocity, seatbelt usage, etc.) Santa Barbara, CA
2000 ATB Model Users' Group Conference, Wichita State University, Wichita, KS*
44th Stapp Car Crash Conference, Atlanta, GA*
1998 5th International LS-DYNA Users Conference, Detroit, MI*
1997 ATB Model Users' Group Conference, US Air Force Armstrong Laboratory, Charlottesville, VA (Apr.)*
1996 Society of Automotive Engineers, 40th Stapp Car Crash Conference, Albuquerque, N.M. (Nov.)*
NATO/AGARD Specialists' Meeting on Impact Head Injury (Nov.)*
ATB Model Users' Group Conference, US Air Force Armstrong Laboratory, Phoenix, AZ (Feb.)*

1995 ATB Model Seminar, Wright-Patterson Air Force Base, Dayton, OH (June)*
LS-DYNA3D Seminar LSTC, Livermore, California (March)*
1993 Society of Automotive Engineers, International Congress & Exposition, Detroit, MI (Feb.) *
Society of Automotive Engineers, International Off-Highway Congress & Exposition, Milwaukee, WI (Sept.)
1992 Society of Automotive Engineers, International Off-Highway Congress & Exposition, Milwaukee, WI (Sept.)
1991 Society of Automotive Engineers, International Congress & Exposition, Detroit, MI (Feb.) *
Society of Automotive Engineers, International Off-Highway Congress & Exposition, Milwaukee, WI (Sept.)
1990 Society of Automotive Engineers, International Off-Highway Congress & Exposition, Milwaukee, WI (Sept.)
1989 Society of Automotive Engineers, International Off-Highway Congress & Exposition, Milwaukee, WI (Sept.)
Society of Automotive Engineers, International Congress & Exposition, Detroit, MI (Feb.) Seminar on Accident Reconstruction, Using CRASH3 Computer Program
1988 Society of Automotive Engineers, International Congress & Exposition, Detroit, MI (Feb.) Seminar on Injuries, Anatomy, Biomechanics and Federal Regulation *
Society of Automotive Engineers, International Off-Highway Congress & Exposition, Milwaukee, WI (Sept.)
1987 Society of Automotive Engineers, International Off-Highway Congress & Exposition, Milwaukee, WI (Sept.)
1986 Society of Automotive Engineers, International Congress & Exposition, Detroit, MI (Feb.) *
1984 Society of Automotive Engineers, International Congress & Exposition, Detroit, MI (Feb.) *
1983 Society of Automotive Engineers, International Off-Highway Congress & Expo., Milwaukee, WI (Sept.)
1982 Society of Automotive Engineers, International Congress & Exposition, Detroit, MI (Feb.)
* Also listed under Biomechanics

WORK EXPERIENCE

5/04 to present — *Researcher, Compliance Testing FMVSS 223 Rear Impact Guards & 224 Rear Impact Protection for B.L. Industries*

2/04 to present — *Member, Board member for North American Brain Injury Society*

7/03 to present — *Member, Board of Governors for International Brain Injury Association*

4/03 to present — *Member, Board of Advisors for Neurotrauma Registry, www.neurotraumaregistry.com*

11/02 to present — *Member, American Society of Testing and Materials (ASTM) F08 Sports Equipment and Facilities Committee, F08.51 Medical Aspects and Biomechanics Subcommittee & F08.53 Task Group on Soccer Headgear Subcommittee*

6/01 to present — *Collaborator, Emergency Room (ER) Biomechanical Brain Injury Evaluation Research, Meritcare Trauma Center, Fargo, ND*

7/98 to present — *Adjunct Associate Professor, Department of Neuroscience at the University of North Dakota School of Medicine, Grand Forks, ND.*

12/97 to present — *Director of Impact Biomechanics Laboratory, College of Engineering and Architecture at North Dakota State University, Fargo, ND.*

10/92 to present — *Tenured Associate Professor & Director of Automotive Systems Laboratory*
Dept. of Mechanical Eng. & Applied Mechanics, North Dakota State University, Fargo, ND.

9/97 to 9/98 — *Faculty Member invited to lecture on biomechanical aspects of pathology in the nervous system secondary to trauma as a part of Neuroanatomy and Neurophysiology Course (NEUPSY 805) at the Fielding Institute with APA accredited Ph.D. Program in Clinical Psychology.*

5/97 to 8/97 — *Researcher, United States Air Force Office of Scientific Research, Summer Research Program, Occupant Biodynamics Modeling, Armstrong Laboratory, Wright-Patterson Air Force Base, Dayton, OH.*
Project involvement: laboratory studies of human body response to impact, head/neck biodynamic modeling, development of biodynamics Injury Criteria for the human.

5/96 to 9/96 — *Researcher, United States Air Force Office of Scientific Research, Summer Research Program, Occupant Biodynamics Modeling, Armstrong Laboratory, Wright-Patterson Air Force Base, Dayton, OH.*
Project involvement: laboratory studies of human body response to impact, head/neck biodynamic modeling, development of biodynamics Injury Criteria for the human.

5/92 to 10/92 — *Tenured Associate Professor, Dept. of Mechanical Engineering & Applied Mechanics, North Dakota State Univ., Fargo, ND.*

9/86 to 4/92 — *Assistant Professor, Dept. of Mechanical Engineering & Applied Mechanics, North Dakota State Univ., Fargo, ND.*

Research Activity

Human Brain Modeling (in conjunction with National Highway Traffic Safety Administration)
Laboratory studies of human body responses to impact and head/neck biodynamic modeling (in conjunction with Armstrong Aerospace Medical Research Laboratory, Human System Division, Wright-Patterson Air Force Base)
Vehicle Dynamics Analysis
Statistical Methods

PUBLICATIONS

BOOK CHAPTERS

Ziejewski, M. – 1997
"Biomechanics of Head Injury", in: *Head Trauma Cases: Law and Medicine* by Dr. A.C. Roberts, Second Edition, John Wiley & Sons, Inc.
Ziejewski, M. – 1992
"Engineering Aspects of Head-Neck Injury", in: *Head and Neck Injury Handbook* by Lawrence J. Smith, Colorado Springs, CO: Shepard's McGraw-Hill, Inc.

LABORATORY MANUALS

Ziejewski, M.
"Automotive Engineering Laboratory: Laboratory Manual", Mechanical Engineering Department, College of Engineering, North Dakota State University, Fargo, ND.

PAPERS

Abolfathi, N., G. Karami and M. Ziejewski – 2006
"Impact Analysis of a Cell – 3D Finite Element Modeling with a Parametric Viscoelastic Material Study", *International Journal of Modeling and Simulation (in press)*..
Ylinemi E., M. Ziejewski and C. Perry – 2006
"Head Rotation during Vertical Impact0 Predicted Using Initial Head Angle and Anthropometry", Aviation, Space and Environmental Journal, October 2006, 77:1041-1048
Abolfathi, N., M. Ziejewski and G. Karami – 2006
"Dynamic Analysis of a Living Cell for Multiscale Traumatic Brain Injury (TBI) Analysis", Biomedical Engineering Society (BMES) Conference, Chicago, IL
Abolfathi, N., M. Ziejewski and G. Karami – 2006
"Dynamic Analysis of a Living Cell – A Three Dimensional Finite Element Modeling", American Society of Mechanical Engineers (ASME) Paper # IMECE2006-15596 International Mechanical Engineering Conference and Exposition, Chicago, IL
Li, D., M. Ziejewski and G. Karami – 2006
"Parametric studies of Brain Materials in the Analysis of Head Impact", IMECE-2006-15596 Paper, *ASME Congress*, Chicago, IL.
Ziejewski, M., Z. Kou, C. Doekett – 2006
"A Comprehensive Statistical Approach to Assessing Biomechanical Parameters for Mild Traumatic Brain Injury", Traumatic Brain Injury, Spinal Cord Injury – The Silent Epidemic of the 21st Century, 8th International Neurotrauma Symposium, Rotterdam, The Netherlands.
Kou Z., M. Ziejewski, G. Bjerke – 2005
"A Telemedical Approach to Using Brain Biomechanics in Emergency Department", *2nd United States National Committee on Biomechanics (USNCB) Frontiers in Biomechanics Symposium*, Vail, CO. (Received *Merit Certificate of Recognition* from the US National Committee on Biomechanics.)
Ziejewski M., R. Danescu, M. Stewart – 2005
"Modified Methodology to Determine Head Acceleration", *International Society of Biomechanics and American Society of Biomechanics 2005 Joint Congress*, Cleveland, OH.
Kou Z., M. Ziejewski – 2005
"A Comprehensive Approach to Studying Mild Traumatic Brain Injuries in Motor Vehicle Crashes", *International Society of Biomechanics and American Society of Biomechanics 2005 Joint Congress*, Cleveland, OH. *(Peer-reviewed abstract)*

9/85 to 9/86	*Lecturer, Dept. of Mechanical Engineering & Applied Mechanics North Dakota State University, Fargo, ND.*
11/80 to 8/85	*Research Assistant, Dept. of Agricultural Engineering North Dakota State University, Fargo, ND.*
4/80 to 11/80	*Exchange Scientist, Agricultural Engineering Department, North Dakota State University, Fargo, ND*
11/77 to 4/80	*Assistant Professor, Mechanical Engineering Department Academy of Technology and Agriculture, Bydgoszcz, Poland.*
11/77 to 4/80	*Instructor, National Institute of Advanced Technical Education (Center of Technology Progress and Staff Perfection).*

Special Appointments

9/06	*Planning Committee, North American Brain Injury Society conference "Brain Injury Conference of the Americas", Miami, FL. September 14-16, 2006.*
9/06	*Paper/Poster Chair, North American Brain Injury Society conference, "Brain Injury Conference of the Americas", Miami, FL. September 14-16, 2006.*
9/05	*Presentation Chair, North American Brain Injury Society conference "Brain Injury: New Science, Best Practice, and Future Innovations," Amelia Island, FL. September 22-24, 2005.*
2/04 to present	*Director for Biomechanics section of North American Brain Injury Society*
2/04 to present	*Board Member for North American Brain Injury Society*
7/03 to present	*Board of Governors for International Brain Injury Association*
4/03 to present	*Board of Advisors for Neurotrauma Registry, www.neurotraumaregistry.com*
11/02 to present	*Development of soccer headgear national standards for American Society for Testing and Materials (ASTM), Member of F08 Sports Equipment and Facilities Committee, F08.51 Medical Aspects and Biomechanics Subcommittee & F08.53 Task Group on Soccer Headgear Subcommittee*
11/02 to present	*American Society for Testing and Materials (ASTM), Member of F08.51 Medical Aspects and Biomechanics Subcommittee*
6/01 to present	*Emergency Room (ER) Biomechanical Brain Injury Evaluation, F M Ambulance, Meritcare Trauma Center, Fargo, ND*
1/97 to 1/98	*Collaborator to the Society of Automotive Engineers (SAE) Human Mechanical Response and Injury Criteria Task Group.*
3/96 to 7/96	*Member of United States Engineering Education Delegation to the Republic of South Africa (Assigned area of emphasis - bioengineering education)*
Started 10/94	*Member of the National Highway Traffic Safety Administration (NHTSA) Collaboration Group on Human Brain Modeling.*
4/00 to 4/02	*President of the Articulated Total Body (ATB) User's Group organized by the Armstrong Aerospace Medical Research Laboratory, Human System Division, Wright-Patterson Air Force Base, Dayton, Ohio.*
2/96 to 4/00	*Chairman of Activities Committee including validation studies and data base development for the Articulated Total Body (ATB) User's Group organized by the Armstrong Aerospace Medical Research Laboratory, Human System Division, Wright-Patterson Air Force Base, Dayton, Ohio.*
6/95 to 2/96	*Member of the Technical Program Committee for the Articulated Total Body (ATB) User's Group organized by the Harry G. Armstrong Aerospace Medical Research Laboratory, Human System Division.*
6/95 to 2/96	*Chair of the Technical Proceedings Committee for the Articulated Total Body (ATB) User's Group organized by the Harry G. Armstrong Aerospace Medical Research Laboratory, Human System Division.*

Teaching Activity

Biomechanics
Vehicle Dynamics
Kinematics (Human Body Dynamics)
Ph.D. and MS Theses
Senior Design Projects
Mechanical Systems Laboratory

Kou Z., M. Ziejewski – 2005
"A Biomechanical Approach to Identifying Mild Traumatic Brain Injuries in Emergency Department", *ASME 2005 Summer Bioengineering Conference*, Vail, CO.

Ziejewski, M., Z. Kou, M. Stewart – 2004
"Predicting the Forces in a Neck Injury Caused by an Underwater Collision", Proceedings of the 15th IASTED International Conference on Modeling and Simulation, Marina Del Ray, CA.

LaPlaca M., M. Ziejewski – 2004
"Biomechanics of Traumatic Brain Injury (TBI): A Review", *Volume 1, Issue 1 -Brain Injury Professional, The Official Publication of the North American Brain Injury Society.*

Ziejewski, M. – 2004
"The Biomechanical Assessment of Traumatic Brain Injury", *Volume 1, Issue 1 - Brain Injury Professional, The Official Publication of the North American Brain Injury Society.*

Ziejewski, M. – 2003
"State-of-the-Art Biomechanical Issues in Relation to Mild Traumatic Brain Injury", North American Brain Injury Society Conference, Amelia Island, FL.

Danescu, R., M. Ziejewski, M. Stewart – 2003
"Practical Parameter for Characterizing the Head-to-Ball Impact and Measuring the Effectiveness of Protective Headgears in Soccer", 5th International Engineering of Sport Conference, UC Davis.

Ziejewski, M. – 2002
"A Biomechanical Examination of Brain Dynamics As A Result of Minor Impacts", 6th Congress of the European Federation of Neurological Societies, Vienna, Austria. (*Peer-reviewed abstract)*

Ziejewski, M. – 2002
"Biomechanics of Traumatic Brain Injury-Identification of Patients at Risk of MTBI in ER Setting Using Biomechanical Analysis", Fourth Annual Brain Injury Association of America, Napa Valley, CA.

Ziejewski, M. – 2002
"Selected Sources for Head Impact Kinematics Useful for Validation of ATB Results", ATB Model Users' Group Conference sponsored by the US Air Force Research Laboratory, Patuxent Naval Air Station, Patuxent River, MD.

Ziejewski, M., R. Swenson, P. Schanfield, M. Gormley, Jr. – 2001
"A Biomechanical Examination of the Efficacy of Soccer Protective Headgear to Reducing Trauma to the Head from Low Impacts", The Brain Injury Association's, 20th Annual Symposium, Atlanta, GA.

Yliniemi, E., M. Ziejewski, C. Perry – 2000
"The Effect of Initial Head Pitch and Subject Size on Head X-Acceleration and Head/Neck Rotation During +Gz Impact Acceleration", Biomechanics Research: Experimental and Computational, Proceedings of the Twenty-Seventh International Workshop, National Highway Traffic Safety Administration, Atlanta, GA.

Ziejewski, M., E. Yliniemi, S. Ramaswamy – 2000
"ATB Simulation vs. Experimental Data for Hybrid III Head and Neck in Frontal Impacts", ATB Model Users' Group Conference sponsored by US Air Force Research Laboratory, Wichita, KS.

Ziejewski, M., L. Obergefell, C. Perry – 2000
"Nonlinear Mathematical Model for Human Head Acceleration Characteristics", Journal of Mathematical Modelling and Scientific Computing, Rolla, MO.

Ziejewski, M. – 1999
"Biomechanical Perspective of Neuronal Damage Due to Brain Deformation", Brain Injury Conference, Bancroft NeuroHealth, Philadelphia, PA.

Ziejewski, M., L. Obergefell, C. Perry, B. Anderson – 1999
"Modes of Human Head/Neck Response to Vertical Impact", *Models for Aircrew Safety Assessment: Uses, Limitations and Requirements.* RTO-MP-20, NATO/RTO Specialist Meeting 3.1-3.10, Dayton, OH.

Ziejewski, M., J. Song – 1998
"Generation of Integrated Skull-Brain Helmet", 5th International LS-DYNA Users Conference, Detroit, MI.

Ziejewski, M., J. Song – 1998
"Assessment of Brain Injury Potential in Design Process of Children's Helmet Using Rigid Body Dynamics and Finite Element Analysis", ATB Model Users' Group Conference sponsored by US Air Force Armstrong Laboratory, Dayton, OH.

Anderson, B., M. Ziejewski, H. Goettler – 1998
"Method to Predict the Energy Absorption Rate Characteristics for a Structural Member", SAE Paper #982388, Detroit, MI.

Pan, X., M. Ziejewski, H. Goettler – 1998
"Force Response Characteristics of Square Columns for Selected Materials at Impact Loading Combinations Based on FEA", SAE Paper #982418, Detroit, MI.

Ziejewski, M. – 1997
"Characterization of Human Head/Neck Response in Z-Direction in Terms of Significant Anthropomorphic Parameters, Gender, Helmet Weight and Helmet Center of Gravity in A +Gz Acceleration", Air Force Office of Scientific Research, Research & Development Laboratories, F49620-93-C-0063, Culver City, CA.

Ziejewski, M. – 1997
"Modes of Human Head/Neck Response in Vertical Impact", Armstrong Aerospace Medical Research Laboratory, Human System Division, Wright-Patterson Air Force Base.

Anderson, B., C. Perry, L. Obergefell, A. Rizer, M. Ziejewski – 1997
"Modeling of Human Neck Response to Vertical Impact", SAFE Symposium, Phoenix, Arizona.

Ziejewski, M., B. Anderson – 1997
"Effect of Initial Body Rotation on Human Body Dynamics in Frontal Collisions", #971369, Ninth International Pacific Conference on Automotive Engineering (IPC-9), IATO (SAE)-Indonesia.

Ziejewski, M., B. Anderson, L. Obergefell – 1996
"ATB Deformable Neck Option for +Gz Acceleration", ATB Model Users' Group Conference sponsored by US Air Force Armstrong Laboratory, Charlottesville, VA.

Ziejewski, M., B. Anderson, L. Obergefell – 1996
"Validation of the Deformable Neck Model for a +Gz Acceleration Pulse", Aerospace Medical Association Annual Scientific Meeting in Chicago, IL.

Ziejewski, M. – 1996
"Finite Element Neck Model for Articulated Total Body Program", Armstrong Aerospace Medical Research Laboratory, Human System Division, Wright-Patterson Air Force Base.

Ziejewski, M., B. Anderson – 1996
"Effect of Structural Stiffness on Occupant Response for a -Gx Acceleration", SAE Paper #962374, São Paulo, SP, Brazil.

Ziejewski, M., H. Goettler – 1996
"Effect of Structural Stiffness and Kinetic Energy on Impact Force and Duration of Impact", SAE Paper #961852, Indianapolis, IN.

Ziejewski, M., B. Anderson, M. Rao and M. Hussain – 1996
"Energy Absorption for Short Duration Impacts", SAE Paper #961851, Indianapolis, IN.

Ziejewski, M, X. Pan – 1996
"Application of Ellipses, Ellipsoids, and Hyperellipsoids in Computer Modeling of Human Body and Interior Surfaces", 1996 ATB Model Users' Group Conference sponsored by US Air Force Armstrong Laboratory, Phoenix, AZ.

Ziejewski, M, D. Grangaard, B. Anderson – 1996
"3-D Animation Generated from ATB Output", 1996 ATB Model Users' Group Conference sponsored by US Air Force Armstrong Laboratory, Phoenix, AZ.

Dimitriu, D., M. Ziejewski and H.J. Goettler – 1993
"Apparatus for Premixed Combustion Analysis", SAE Paper #931675, Milwaukee, WI.

Dimitriu, D., M. Ziejewski and H.J. Goettler – 1993
"A Study of Energy Released During Premixed Combustion", SAE Paper #931676, Milwaukee, WI.

Ziejewski, M. and H.J. Goettler – 1992
"Design Modifications For Durability Improvements For Diesel Engines Operating on Plant Oil Fuels", SAE Paper #921630, Milwaukee, WI.

Ziejewski, M. S.I. Mehta – 1992
"Dual Fuel System: Instrumentation and Experimentation", ASEE Annual Conference Proceedings.

Ziejewski, M., B. Christenson and J. Hobstritt – 1991
"Computer Simulation of Fuel Nozzle Needle Dynamics", Twelfth Annual Conference, ADIUS, 1991.

Ziejewski, M., H.J. Goettler and D.G. Dimitriu – 1991
"Development of an Infrared Method for Ignition Delay Measurements", SAE Paper #910847, Detroit, MI.

Mehta, S.I., M. Ziejewski and K. Loke – 1991
"PC Based Data Acquisition and Analysis of a Diesel Engine", ASEE Annual Conference, New Orleans, LA.

Dimitriu, D.G., H.J. Goettler and M. Ziejewski – 1990
"Apparatus for the Measurement of Ignition Delay Times for Diesel Engine Fuels", SAE Paper #901617, Milwaukee, WI.

Ziejewski, M., S. Mehta, H. Goettler and S. Goplen – 1990
"Fast Data Acquisition For Internal Combustion Engines Laboratory", ASME Proceedings of the 1990 International Conference on Computers in Engineering, Vol. 2, Boston, MA.

Mehta, S.I., M. Ziejewski and S. Goplen – 1990
"Mechanical Engineering Laboratory Automation Using Personal Computers", ASME Proceedings of the 1990 International Conference on Computers in Engineering, Vol. 2, Boston, MA, Aug. 1990.

Ziejewski, M., J. Stanislao, S. Goplen and T. Wee – 1989
"A Study on New Centrifugal Pump For Slurries", SAE Paper #891942, Milwaukee, WI.
Ziejewski, M. and D.S. Gill – 1989
"Discharge Coefficients for Multi-Hole Fuel Injection Nozzle for Alternate Fuels", SAE Paper #890448, Detroit, MI.
Ziejewski, M. and D.S. Gill – 1988
"Simultaneous Test Procedure Approach to Alternate Fuels Performance Evaluation", SAE Paper #881333, Milwaukee, WI.
Ziejewski, M. and H.J. Goettler – 1988
"Effect of Lacquer Deposits from Sunflower Oil on Injection Needle Mobility For Different Needle Guide Clearances", SAE Paper #881336, Milwaukee, WI.
Ziejewski, M. and S.I. Mehta – 1988
"Numerical Optimization Approach to the Design of a Diesel Engine Fuel Injection Nozzle for Alternate Fuels", SAE Paper #880492, Detroit, MI.
Ziejewski, M. and H.J. Goettler – 1988
"Reduced Injection Needle Mobility Caused by Lacquer Deposits from Sunflower Oil", SAE Paper #880493, Detroit, MI.
Ziejewski, M. and D.S. Gill – 1987
"Simultaneous Test Procedure Approach to Alternate Fuels Residue Analysis", SAE Paper #872091, Toronto, Canada.
Ziejewski, M., R. Poulin – 1986
"Analysis of the Diesel Engine Performance Using the Statistical Analysis System Software", SAE Paper #861231, Milwaukee, WI.
Ziejewski, M., G.L. Pratt and H.J. Goettler – 1986
"Comparative Analysis of the Long-Term Performance of a Diesel Engine on Vegetable Oil Based Alternate Fuels", SAE Paper #860301, Detroit, MI.
Goettler, H.J., A.M. Knudson and M. Ziejewski – 1985
"Performance of a Diesel Engine Operating on Blends of Diesel Fuel and Crude Sunflower Oil at Normal and Elevated Fuel Temperatures", SAE Paper #852087, Tulsa, OK.
Ziejewski, M., H.J. Goettler and G.L. Pratt – 1985
"Fuel Injection Anomalies Observed During Long-Term Engine Performance Tests on Alternate Fuels", SAE Paper #852089, Tulsa, OK.
Ziejewski, M., D. Hertsgard and K.R. Kaufman – 1985
"Statistical Aspects of Testing Alternate Fuels", SAE Paper #852088, Tulsa, OK.
Ziejewski, M., K.R. Kaufman, A.W. Schwab and E.H. Pryde – 1984
"Diesel Engine Evaluation of a Nonionic Sunflower Oil-Aqueous Ethanol Microemulsion", *Journal of American Chemists Society* (JOACS), Vol. 61, No. 10.
Ziejewski, M., K.R. Kaufman and R.C. Tupa – 1984
"Laboratory Endurance Testing of a 25/75 Sunflower Oil-Diesel Fuel Blend Treated with Fuel Additives", SAE Paper #840236, Detroit, MI.
Walicki, E., J. Sawicki, M. Ziejewski – 1978
"Inertia Effect in Magnetic Throughflow of Viscous Fluid in a Slot Between Fixed Surfaces of Revolution", *Rev. Roum. Sci. Tech. - Mecanique Appkiquee*, Tome 23, No. 6, p. 859-969, Bucarest.

COMPUTER SOFTWARE/MODELS DEVELOPED

"Elliptical Brain Model" - 1993-1997
A 3-dimensional finite element model representing a human brain.
"Impact" - 1985-1990
The program performs an analysis of single or two vehicle accidents. The program determines the conditions of impact, including the speed of the vehicles at impact and the forces generated during the impact.
"Post-Impact: - 1985-1990
The program performs a simulation of single or two vehicle accidents. The simulation program determines the vehicle trajectory and the rest position.
"Expert System for Experimental Design and Statistical Analysis" - 1991
For use by graduate students in all areas of engineering.

PATENTS

USA Patent Office, No. 6,726,623 (Principal Investigator) – 2004
"Brain Injury Diagnostic System", registered by M. Ziejewski
USA Patent Office, No. 4,823,756 (Principal Investigator) – 1989
"Two Stage Fuel Injection Nozzle", registered by M. Ziejewski and H.J. Goettler.
Poland Patent Office, No. P-2042821 (Principal Investigator) – 1979
"Nonoil Cooling Mixture for Metalworking", registered by M. Ziejewski (rights acquired by Heavy Machinery Industry, Poland).

PROFESSIONAL PRESENTATIONS

2006 Ziejewski, M. M. Pietrzak, MD (Col. USAF, MC, ret), D. Warden, MD (National Director, Defense and Veterans Brain Injury Center, Walter Reed Army Medical Center), L. French, PhD (Chief of Clinical Services, Defense and Veterans Brain Injury Center. Walter Reed Army Medical Center), and G. Grant, MD (Assistant Professor of Neurosurgery, Department of Surgery, Division of Neurosurgery, Duke University Medical Center) "Panel Discussion: Blast Injuries and Traumatic Brain Injury", North American Brain Injury Society, Brain Injury Conference of the Americas, Miami, FL.
Ziejewski, M. "Biomechanics of Mild TBI", North American Brain Injury Society, Brain Injury Conference of the Americas, Miami, FL.
Abolfathi, N., M. Ziejewski and G. Karami. "Dynamic Analysis of a Living Cell for Multiscale Traumatic Brain Injury (TBI) Analysis," Biomedical Engineering Society (BMES) Conference, Chicago, 2006.
Li, D., M. Ziejewski and G. Karami. "Parametric studies of Brain Materials in the Analysis of Head Impact," ASME International Conference and Exhibition, Chicago, 2006.
Ziejewski, M., I. Akhatov, G. Karami, "Brain Injury Caused by Blasts – Nanofilm Dynamics of Cavitation", Brain Injury Conference of the Americas, North American Brain Injury Society, Miami, FL
Ziejewski, M., Z. Kou, C. Doekett, "A Comprehensive Statistical Approach to Assessing Biomechanical Parameters for Mild Traumatic Brain Injury", Traumatic Brain Injury, Spinal Cord Injury – The Silent Epidemic of the 21st Century, 8th International Neurotrauma Symposium, Rotterdam, The Netherlands.

2005 "Biomechanics of Traumatic Brain Injury – A Review" and "The Biomechanical Assessment of Traumatic Brain Injury." Spring 2005 Brain Injury Conference: "*Biomechanics and Physiological Impact of Traumatic Brain Injury*" and *American Academy for the Certification of Brain Injury Specialists* (AACBIS). Memphis, TN, April 15, 2005.

2004 "Using ATB to Predict Mild Traumatic Brain Injury", ATB Model Users' Group Conference, Salt Lake City, UT.
"Biomechanics of Brain Injury". Fifth Annual Managing Challenging Situations in Brain Injury Care, Bethseda Rehabilitation Hospital, Minneapolis, MN.
"Biomechanical Evidence in Mild Brain Injury Case". Brain Injury Association of Indiana, Indianapolis, IN.
"Biomechanics of TBI". 17th Annual Conference on Medical & Legal Issues in Brain Injury, North American Brain Injury Society & International Brain Injury Association, Beaver Creek, CO

2003 "The Biomechanics of Brain Injury." The Brain Injury Association of New York State, New York, NY.
"The Biomechanics of Brain Injury". Brain Injury Association of America, Napa Valley, CA.
"State-of-the-Art Biomechanical Issues in Relation to Mild Traumatic Brain Injury", North American Brain Injury Society Conference, Amelia Island, FL.
"Biomechanical Perspective on Low Energy Impacts Causing Serious Long Term Consequences", 5th World Congress on Brain Injury, International Brain Injury Association, Stockholm, Sweden.
"State-of-the-Art Biomechanical Issues In Relation to Mild Traumatic Brain Injury". 5th World Congress on Brain Injury, International Brain Injury Association, Stockholm, Sweden.
"The Mechanism of Traumatic Brain Injury." Brain Injury Association of Utah, Salt Lake City, UT.

2002 "A Biomechanical Examination of Brain Dynamics As A Result of Minor Impacts", 6th Congress of the European Federation of Neurological Societies, Vienna, Austria.
"Biomechanics of Traumatic Brain Injury-Identification of Patients at Risk of MTBI in ER Setting Using Biomechanical Analysis", Fourth Annual Brain Injury Association of America, Napa Valley, CA.
"Selected Sources for Head Impact Kinematics Useful for Validation of ATB Results", ATB Model Users' Group Conference sponsored by the US Air Force Research Laboratory, Patuxent Naval Air Station, Patuxent River, MD.

2001 "Case Specific Visualization and Assessment of Biomechanical Brain Modeling Based on MRI Data" Brain Injury Association of California, Napa Valley, CA.
"A Biomechanical Examination of the Efficacy of Soccer Protective Headgear in Reducing Trauma to the Head from Low Impacts", The Brain Injury Association's, 20th Annual Symposium, Atlanta, GA.

2000 "The Mechanism of Concussion," Sports Related Concussions Workshop, ASTM Subcommittee F08.51 on Medical Aspects and Biomechanics, Orlando, FL.
"Biomechanical Issues Related to Reduction of Trauma to the Brain from Unanticipated Low Impacts in Soccer" Chairman's Roundtable Discussion on Head Injury and Youth Sports, United States Consumer Products Safety Commission, Washington, D.C.
"The Biomechanics of Traumatic Brain Injury" The Brain Injury Association of New York State, New York, NY.
"ATB Simulation vs. Experimental Data for Hybrid III Head and Neck in Frontal Impacts", ATB Users' Group Conference sponsored by US Air Force Research Laboratory, Wichita, KS.
New NHTSA Standards and Injury Requirements for Biomechanics of Brain Injury for Model Year 2003-2005 Vehicles, Brain Injury Association of California, Napa Valley, CA.

1999 "Biomechanical Perspective of Neuronal Damage Due to Brain Deformation," Brain Injury Conference, Bancroft NeuroHealth, Philadelphia, PA.

1998 "Human Head/Neck Response Modes for Vertical Impact," NATO/RTO Specialist Meeting, Dayton, OH.
"Generation of Integrated Skull-Brain Model," 5th International LS-DYNA Users Conference, Detroit, MI.
"Assessment of Brain Injury Potential in Design Process of Children's Helmet Using Articulate Total Body and Finite Element Modeling," ATB Model Users' Group Conference sponsored by US Air Force Armstrong Laboratory, Dayton, OH.

1997 "ATB Deformable Neck Option for +Gz Acceleration", ATB Model Users' Group Conference, Charlottesville, VA.

1996 "Human Brain Modeling", University of Pretoria, Department of Engineering, Pretoria, South Africa as a part of the United States Engineering Education Delegation to the Republic of South Africa.
"Human Brain Modeling", University of Cape Town, Department of Engineering, Rondebosch, South Africa as a part of the United States Engineering Education Delegation to the Republic of South Africa.
"Human Brain Modeling", University of Witswatersrand, Department of Engineering, Johannesburg, South Africa as a part of the United States Engineering Education Delegation to the Republic of South Africa.
"Application of Ellipses, Ellipsoids, and Hyperellipsoids in Computer Modeling of Human Body and Interior Surfaces", 1996 ATB Model Users' Group Conference sponsored by US Air Force Armstrong Laboratory, Phoenix, AZ.
"3-D Animation Generated from ATB Output", 1996 ATB Model Users' Group Conference sponsored by US Air Force Armstrong Laboratory, Phoenix, AZ.

1992 "Design Modifications for Durability Improvements For Diesel Engines Operating on Plant Oil Fuels", International SAE Meeting, Milwaukee, WI.
"Comparative Analysis of the Exhaust Emissions from Vegetable Oil Based Alternative Fuels", International SAE Congress, Detroit, MI.
"Alternative Fuels for Diesel Engines:, 8th SSTS Seminar, Fargo, ND.

1991 "Development of an Infrared Method for Ignition Delay Measurements", International SAE Congress, Detroit, MI.

1989 "Duel-Air Injection Nozzle for Diesel Engines", International SAE Off-Highway Meeting, Milwaukee, WI.
"A Quantitative Analysis for a Slurry Centrifugal Pump", International SAE Off-Highway Meeting, Milwaukee, WI.
"Discharge Coefficients for Flow-Through Multi-hole Fuel Injection Nozzle for Alternate Fuels", International Fuels and Lubricants Meeting, Portland, OR.

1988 "Simultaneous Test Procedure Approach to Alternate Fuels Performance Evaluation",
International SAE Off-Highway Meeting, Milwaukee, WI.
"Numerical Optimization Approach to the Design of a Diesel Engine Fuel Injection Nozzle",
International SAE Congress, Detroit, MI.

1987 "Lubricant Performance and Turbochargers Analysis for Alternate Fuel Tests",
International SAE Off-Highway Meeting, Milwaukee, WI.

1986 "Analysis of the Diesel Engine Performance Using the Statistical Analysis System Software"
International Fuels and Lubricants Meeting, Philadelphia, PA.
"Influence of Vegetable Oil Based Alternate Fuels on Residue Deposits and Components Wear in Diesel Engine",
International SAE Congress, Detroit, MI.
"Comparative Analysis of the Long Term Diesel Engine Performance on Vegetable Oil Based Alternate Fuels",
International SAE Congress, Detroit, MI.

1985 "Statistical Aspects of Testing Alternate Fuels",
International Fuels and Lubricants Meeting, Tulsa, OK.
"Performance of a Diesel Engine Operating on Blend of Diesel Fuel and Crude Sunflower Oil at Normal and Elevated Fuel Temperatures", International Fuels and Lubricants Meeting, Tulsa, OK.
"Statistical Aspects of Testing Alternate Fuels",
International Fuels and Lubricants Meeting, Tulsa, OK.

CURRICULUM DEVELOPMENT

- Developed a course, ME 743, "Biomechanics of Impact"
- Developed a course, ME 744, "Impact Neurotrauma."
- Developed a course, ME 496/696 "Fundamentals of Vehicle Dynamics."
- Developed laboratory (8 experiments) for ME 496/696 course "Fundamentals of Vehicle Dynamics."
  Development included: experimental setup of the experiment, experiment and data evaluation procedures, annotated bibliography of current related literature and reference list.
- Introduced PC-based data acquisition in the ME 487, ME 488, and ME 456 laboratories.

MEMBERSHIPS

North American Brain Injury Society (NABIS) Board Member
International Brain Injury Association (IBIA) Board of Governors
Society of Automotive Engineers (SAE)
American Society for Testing and Materials (ASTM) F08 Sports Equipment and Facilities Committee, F08.51 Medical Aspects and Biomechanics Subcommittee & F08.53 Task Group on Soccer Headgear Subcommittee
Association for the Advancement of Automotive Medicine (AAAM)
American Society of Mechanical Engineers (ASME), Bioengineering Division
SAFE (Safety and Flight Equipment) Association, Wright Patterson Air Force Base, Ohio

AWARDS

Received *Merit Certificate of Recognition* from the US National Committee on Biomechanics for the poster presentation "A Telemedical Approach to Using Brain Biomechanics in Emergency Department" at *The Second US National Symposium on Frontiers in Biomechanics* (2005).
Selected for Summer Research Program in Occupant Biodynamics Modeling at the Armstrong Laboratory at Wright-Patterson Air Force Base, OH (1997)
United States Air Force Office of Scientific Research Award
Selected for Summer Research Program in Occupant Biodynamics Modeling at the Armstrong Laboratory at Wright-Patterson Air Force Base, OH (1996)
College of Engineering & Architecture Researcher of the Year Award, North Dakota State University, Fargo, ND (1992)
Polish Government Scholarship for Research and Education at Foreign Universities.
Selected by the Polish Academy of Science on behalf of the Polish government, with fourteen other researchers, for research in a foreign country. The selection was made based on the national screening procedure including professional examinations and interviews. (1979)

11/10/2006